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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/075,715	02/13/2002	Michael Chopp	1059.00073	9739

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EXAMINER	
GEMBEH, SHIRLEY V	
ART UNIT	**PAPER NUMBER**
1614	

DATE MAILED: 05/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/075,715	CHOPP ET AL.	
	Examiner	Art Unit	
	Shirley V. Gembeh	1614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on *14 Feb 2005*.

2a)☒ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☐ Claim(s) *1-13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) *1-13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *7/14/03*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> "The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention."

Claims 1 – 13 are rejected under 35 U.S.C. 112 second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 1 *per se* is incomplete because there is no result stated in the claim for the effect of increased cGMP levels whereas this is stated in claim 2. Claim 2 is indefinite in view of claim 3 because claim 2 indicates that the compound effects increased levels of cGMP which in turn effects neurogenesis whereas in claim 3, the compound *per se* appears to effect neurogenesis.

Claim 3 is also unclear as to the phraseology "in a pharmaceutically acceptable carrier". Shouldn't this phrase be located after "therapeutic compound" rather than after "promoting neurogeneis" since the claim currently has "...capable of promoting neurogenesis in a pharmaceutically acceptable carrier" or does this mean that neurogenesis occurs when the compound is in a pharmaceutically acceptable carrier?

Claims 1 and 3(claim 4 depends from claim 3) - 13 contain language that is vague. See "... therapeutic compound for increasing levels of cGMP. It is not clear as to what the compoundis that is recited in the claims increased means just that, increased. Thus, the metes and bounds of the claims cannot be determined because it is not clear whether it is the compound *per se* that promtes neurogenesis or whether it is the cGMP or whether the presence of the unknown compound and cGMP are necessary to effect neurogenesis. Claim 3 is indefinite in view of claim 2 because in claim 2, the level of cGMP is indicated as effecting neurogenesis whereas in claim 3,

the compound is indicated as promoting neurogenesis. Thus, the actual effector of the process is indefinite as currently written in claim 3.

Also claim 5 is rejected because it contains the Markush language that is not closed but should be since it is not clear what is or is not included via the consisting essentially of terminology. See "... selected from the group consisting essentially of ..." where the "essentially of" should be deleted from the claims. Thus, although the use of Markush claims of diminishing scope should not, in itself, be considered a sufficient basis for this rejection, the usage of the "consisting essentially of" herein, presents uncertainty or ambiguity with respect to the question of scope and/or clarity of the claim. Also see M.P.E.P. 2173.05(h).

Claim 6 appears to be indefinite due to missing words/phrases. See "a therapeutic compound that increases levels of cGMP, nitric oxide donor to a site in need of augmentation". Should not there be some language between "cGMP," and "nitric oxide ..." or should "nitric oxide donor" have been deleted? Compare this to claim 7.

Claim 7 is unclear as to the nexus of increasing neurological function and increased levels of cGMP. The compound recited in the claim only has to increase cGMP. How is or what is the step in the claim that effects increased neurological function?

Claim 8 is incomplete regarding the effector of the increased cognitive and neurological function. Is it the compound or the increased level of cGMP or both the compound and the increased level of cGMP?

Claims 9-12 are rendered vague and indefinite because they fail to recite clear and distinct process steps for increasing cGMP levels. See for example, adding 'administering an effective amount".

Claim Rejections – 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims are drawn to a therapeutic compound of promoting neurogenesis, in a pharmaceutical acceptable carrier, that increases level of cGMP, augmenting nitric oxide, such as L-arginine.

Claims 2 - 5 and 13 are rejected under 35 U.S.C. 102(b) as anticipated by Moskowitz US 5385940 or Poluha et.al J. of biological Chem. Vol 272(38) pp24002-7. Moslowitz teaches of a nitric oxide donor to be –L-arginine (column 2 line7). Growth, augumenting to a site in need of – does not alter the compound nor the composition. The Moskowitz patent discloses L-arginine (see, e.g., the abstract, column 3) as a nitric oxide releasing compound. Consequently, the reference anticipates the claimed invention defined in claims 2-5 and 13.

Claims 2 - 4 and 13 are rejected under 35 U.S.C. 102(b) as anticipated by Poluha et al.

Poluha teaches the current claim2 and 4- a nitric oxide donor to be nerve growth factor (NGF) (see abstract), of neuron growth, (pp 24006 end of 1st paragraph), augmenting to a site in need of see fig 1. Poluha also teaches of increase levels of cGMP (see page 24005 last paragraph) using NGF. Poluha teaches that treating PC12 cell with the

nerve growth factor leads to production of nitric oxide (abstract and entire paper) and nitric oxide results in an increase in cGMP(ref, P 24005, left column, which makes claim 2 anticipated. The poluha et al. reference also teaches (p 24005, left column) that another results is neutrite extension(i.e., effecting neurogenesis (current claim 1-3). He compound meeting criteria of claim 13 is NGF.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cunningham et al in view of Moskowitz and Poluha et.al J. of biological Chem. Vol 272(38) pp24002-7.

Cunningham et al disclose methods of promoting promoting neurogenesis (see column 17, lines 4-6), augmenting the production of neurons (see column 17, lines 4-6), and increasing neurological and cognitive functions (see column 17, lines 4-17) by administering a neurotrophic factor or nerve growth factor (NGF) (i.e. therapeutic compound), see column 1, lines 35-38, column 15, lines 48-49, column 17, lines 4-17.

The increased levels of cGMP result in vivo by administering the therapeutic compound to a patient in need thereof. Thus, the increased levels of cGMP are inherent to the teachings of the cited disclosure. It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to promote neurogenesis (see column 17, lines 4-6), augmenting the production of neurons (see column 17, lines 4-6), and increasing neurological and cognitive functions (see column 17, lines 4-17) by administering a neurotrophic factor or nerve growth factor (NGF) (i.e. therapeutic compound), see column 1, lines 35-38, column 15, lines 48-49, column 17, lines 4-17, via administration of the compound because it is taught to promote neurite growth, and administered to a stroke patient or the like (column 4 line54-62).

Therefore, cGMP levels would have been expected to be increased in vivo as a result of the administration of the NGF factor or therapeutic compound. For example, one of skill at the time the claimed invention was made would have been motivated to administer a therapeutic compound for promoting neurite growth for increasing cognitive and neurological functions, to a post stroke patient, as well as promoting neurogenesis and augmentation of neurons. Neurogenesis is defined as increased or enhance neural growth. Cunningham et al teaches of neuron growth in column 4 lines 57-67.

Augumentation is defined as enhanced or suppressed growth. Cunningham teaches NGF as an enhancing neurite growth at column 16 lines 3-10. Therefore, one of skill would have expected successful results because the prior art recognizes that neurite growth can be enhanced and increased. The claims in the alternative are, therefore, considered to be prima facie obvious over the cited prior art.

Further, a pharmaceutical carrier is taught at column17 line 65. (the neurogenesis promoter is taught at column 1 line 35-38 and column 4 lines 54-60, the treatment of stroke is taught at column 4 lines 54-60), administered to a site in need of taught at column column 17 lines 44-46).

Moskowitz teaches of a therapeutic compound for treating neurological disorders such as stroke using nitric oxide (L-arginine as the nitric oxide donor)(see, e.g., the abstract, column 3), administered to a site taught at column 3 lines 55-58.

Poluha et al teaches increasing cGMP with nitric oxide compounds and NGF(see discussion on page 24005 column 1 lines24-29).

The claims differ from the disclosure of Cunningham et al in that the therapeutic compound administered is L-arginine but a nitric oxide donor.

It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to replace the compound of Cunningham with the compound of Moskotiwz and Poluha in order to provide for a therapeutic compound and methods for promotion of neurogenesis, augumentation of neurons, cognitive and neurological functions as taught by the cited prior art.

Moskowitz specifically disclosed the compound L- arginine as a nitric oxide donor (column 2 lines 1-10), as Poluha et al clearly teach of a nerve growth factor activated pathway involving nitric oxide in the regulation of neural growth (page 24003 column 1 line 5). Moskowitz clearly teach of the administering of the nitric oxide donor to a stroke patient or after the episode has occurred (column 3 line39-41). The carrier taught by Moskowitz to be a pharmaceutical although they did not specifically teach pharmaceutical it is obvious of the said teaching column 3 line 44-54). In the absence of the persuasive evidence the claims are rendered prima facie obvious. It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to combine the teachings of Cunningham, Poluha and Moskowits to give neuron growth, augments, increase cGMP levels at the site in need of to, a patient suffering from neurodegenerative disorders such as stroke. One of ordinary skill in the art would have expected successful result for administering L-arginine to give neuron growth, increase levels of cGMP and augument.

No claim is allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shirley V. Gembeh whose telephone number is 571-272-8504. The examiner can normally be reached on 8:30 -5:00 Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christopher Low can be reached on 571-272-0951. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SVG
05/13/05

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